

**REMARKS/ARGUMENTS**

In the Office Action mailed on May 1, 2007, the Examiner objected to the specification because of certain abbreviations. Applicants respectfully submit that the optical materials cited on page 20 of the specification are commonly known in the field: LiNbO<sub>3n</sub> is Lithium Niobate Crystal material; KTP, or potassium titanyl phosphate (KTiOPO<sub>4</sub>) is a nonlinear optical material, and AANP is an organic nonlinear optical crystal.

Examiner rejected claims 3-5 and 8-14 under 35 U.S.C. §112, first paragraph for lack of enablement, and claims 4-14 under 35 U.S.C. §112, second paragraph as indefinite.

By this Amendment Applicants amend claims 1-14 to clarify the subject matter of the invention and to overcome the insufficient antecedent basis rejection. In making these revisions, care has been taken to ensure that the claims remain supported by the specification and that no new matter has been added.

Examiner further rejected claims 1, 2, 6 and 7 under 35 U.S.C. §103(a) as unpatentable over Ishikawa (USPN 5,760,937), and claims 9-12 under 35 U.S.C. §103(a) as unpatentable over Ishikawa in view of Knox (USPN 5,631,758). Claims 3, 4, 8, and 13 rejected under 35 U.S.C. §103(a) as unpatentable over Ishikawa in view of Kumar (USPN 7,027,735). Applicant appreciates the time and consideration provided by Examiner in reviewing this application, however, respectfully traverse the 103 rejection at least for the following reasons.

**Rejection Under 35 U.S.C. §103**

According to MPEP §706.02(j):

"To establish a *prima facie* case of obviousness... the prior art reference (or references when combined) must teach or suggest all claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on the applicant's disclosure."

The present invention is directed to method and apparatus for channel extraction of optical time-division-multiplexed signals based upon one-to-one relations between port numbers of the optical time-division-demultiplexed unit and the channel numbers. The time-division-multiplexed signals are separated into as many as N channels, and the demultiplexed signals are directed to the output ports of which port numbers match with the channel numbers. According to this method the channel sequence over the time axis is uniquely converted into the channel sequence over the wavelength axis to provide output to the N separate ports. Thus, if one of N channels is identified, all N channels can be switched to the output ports at a time of which port numbers uniquely match with the channel numbers (see for example, specification, page 4 line 25 to page 5, line 7). According to one of the aspects of the invention, it may have a step of demultiplexing time-division-multiplexed light signals having irregular channel intervals on the time axis. An example of the irregular-intervals optical time-division-multiplexed signal generator 306 is described in the English specification page 29, line 5 to page 30, line 12, and shown in FIGS. 17 and 18. Light pulse train inputted to the generator 306 has a repetition frequency  $f_0$ . Since the light pulse train is transmitted and received through a TDM system, intervals between each of N channels are regular intervals  $1/Nf_0$ . The generator 306 conducts signal multiplexing by giving irregular-intervals to multiplexed bit data of N channels. The optical time-division-multiplexing unit 301 separates the optical time-division-multiplexed signals with irregular intervals from the generator 306 into as many as N channels. In a node of the TDM system using the

SDH method, the optical time-division-multiplexed channel extraction apparatus including the generator 306 and the unit 301 is used to extract the channels multiplexed in the light pulse train corresponding to optical time-division-multiplexed signals. The optical time-division-multiplexed signals are transmitted and received through the TDM system with irregular bit intervals. (See for example, page 13, line 3 to page 14, line 13). Thus, the specification provides sufficient details.

In Ishikawa, the line identification data extraction circuits 314 and 316 extract the identification data 312. In accordance with the identification data, a control circuit 318 controls a signal circuit 320. (Column 33, lines 21-34, and Fig.83). In accordance with the identification data extracted by the line identification data extraction circuits 314 to 317, the control circuit 318 controls the phase shifters 322, 323 and 323'. (Column 34, Fig. 86). Thus, in the optical demultiplexers of Ishikawa, all channel numbers of the optical signals are extracted by the line identification data extraction circuits.

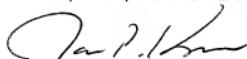
On the other hand, in a time-division-multiplexed light signal channel extraction apparatus of the present invention, the channel extraction unit (102) only identifies the channel of separate port-1 of the optical time-division-multiplexing unit (101). (See embodiment 1, page 9, lines 16-21). The other ports are uniquely related to individual channels on the one-to-one basis between each of the port numbers of the optical time-division-multiplexing unit and the channel numbers. Thereby, it becomes easy to extract the channels, and the system can be downsized.

Knox and Kumar neither disclose nor suggest that all the channels are identified by recognizing one channel and that all the ports provide output signals at the same time using optical time-division-multiplexed signal with irregular intervals. Thus, none of the cited prior art references, alone or in combination disclose or suggest channel extraction of optical time-division-multiplexed signals based upon one-to-one

relations between port numbers of the optical time-division-demultiplexed unit and the channel numbers so that if one of N channels is identified, all N channels can be switched to the output ports at a time of which port numbers uniquely match with the channel numbers. Therefore, the Applicants believe that the present invention is not obvious from the prior art, and respectfully request reconsideration of rejection of claims 1-14 as originally filed and amended by this response.

The Commissioner is hereby authorized to charge any other fees which may be required in this communication under 37 C.F.R. §§1.16-1.17 to Deposit Account No. 06-1135.

Respectfully submitted,  
FITCH, EVEN, TABIN & FLANNERY



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